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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of

Redevelopment of Spectrum to
Encourage Innovation in the
Use of New Telecommunications
Technologies

ET Docket No. 92-9

RM-7981

RM-8004

ORIGINAL
FILE

COMMENTS OF
NATIONAL PUBLIC RADIO, INC.

National Public Radio, Inc. ("NPR") hereby submits these comments regarding the Further Notice of Proposed Rule Making ("FNPRM"). NPR opposes certain aspects of proposals in the FNPRM regarding reallocation and rechannelization of the 3.7 - 4.2 GHz band.

NPR is a nonprofit, noncommercial organization that provides programming and satellite interconnection services to approximately 458 full-service public radio stations, and represents them in developing and maintaining a viable and diverse public radio service for the American public. Under a contract with the Corporation for Public Broadcasting, NPR manages the Public Radio Satellite Interconnection System ("PRSIS") for the benefit of over 340 interconnected public radio stations. The PRSIS is the primary artery for satellite distribution of public radio programming in the United States.

In its capacity as PRSIS manager, NPR leases for an interim period two C-band transponders on Galaxy VI, a satellite owned by Hughes Communications Galaxy, Inc ("Hughes"). In addition, two C-band transponders on Hughes' new Galaxy IV(H) satellite have

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been purchased for the benefit of the PRSIS. The new C-band transponders are scheduled to become operational in early 1993 and will replace the leased capacity on Galaxy VI. The replacement, refurbishment, and upgrade of the public radio satellite system is made possible by funds appropriated by Congress.

The PRSIS currently consists of 340 receive earth terminals located at public radio stations serving all fifty states, as well as twenty-two transmit-capable earth terminals which permit immediate access to the PRSIS from widely diverse geographic locations. All of the transmit terminals, and the vast majority of the receive-only earth terminals in the PRSIS have been frequency-coordinated and licensed or registered, as appropriate, by the Commission.

The original Notice of Proposed Rule Making ("NPRM") in this Docket (ET Docket No. 92-9, 7 FCC Rcd 1542 (1992)) proposed that 220 MHz of spectrum between 1.85 and 2.20 GHz be reallocated to emerging telecommunications technologies. The FNPRM proposes that this reallocation include the 3.7 to 4.2 GHz band. This band is presently shared on a co-primary basis by fixed common carrier and satellite communications services, and includes fixed private radio use on a co-primary basis as well. In addition, the FNPRM proposes rechannelization of this 3.7 to 4.2 GHz band for terrestrial users from the present 20 MHz spacing to a number of different channel spacings and bandwidths at different frequencies within this band.

In comments responding to RM-8004, NPR did not oppose

the reasonable accommodation of displaced 2 GHz users in these frequency bands provided that the current channelization would be maintained and that frequency coordination would continue to be accomplished using current procedures. Indeed, as detailed below, public radio has successfully coexisted with terrestrial microwave users utilizing 20 MHz channel spacing for more than thirteen years. Even with the additional terrestrial private radio users that would potentially become users of this band, NPR sees no reason why coexistence could not continue in the future, as long as the 20 MHz terrestrial channel spacing is maintained. However, the FNPRM proposes to adopt the reallocation and rechannelization proposals¹ of Alcatel and NPR strongly opposes those provisions concerning the rechannelization of the 3.7 to 4.2 GHz band for terrestrial users.

The PRSIS has selected C-band satellites for distribution of public radio programming because C-band satellites offer the only source of interconnection that can simultaneously cover all 50 states and remain relatively impervious to precipitation fade. The PRSIS utilizes single-channel-per-carrier ("SCPC") transmission technology in order to provide maximum uplink and downlink flexibility for its users. With as many as seventy or more separate carriers per transponder, it is not possible to operate each carrier at transponder saturation power level; in fact, the power level of individual carriers is in most cases 20 dB or more below

¹FNPRM at ¶ 18.

saturation level. As a result, some PRSIS downlinks receive carrier power from the satellite at lower power levels than those received from terrestrial microwave carriers.

PRSIS sites that have been frequency coordinated are demonstrably subject to terrestrial signals that can materially interfere with normal SCPC satellite signals and frequency coordination alone does not provide adequate protection for this service, even under existing conditions. In operating the SCPC satellite distribution system with multiple receive sites, an operating assumption is made that although some locations will experience high terrestrial signal levels, they must also be capable of receiving satellite service simultaneously without interruption. To avoid interference to the satellite service caused by the presence of high level terrestrial carriers, the frequency plan utilized by the PRSIS accommodates the existing 20 MHz channel spacing of the terrestrial microwave service by providing guard bands at ± 10 MHz from transponder centers. While this technique of "frequency avoidance" contributes to a relatively peaceful coexistence between SCPC satellite users and terrestrial services, it can only be achieved by reducing the usable transponder bandwidth.

The proposal to introduce 10 MHz terrestrial channel spacing throughout the full 3.7 to 4.2 GHz band² would effectively reduce the usable transponder bandwidth to a point that would make satellite communications using SCPC technology

²Proposed Sections 21.701(d)(5) and 94.65(g)(5)

impractical on any transponder, since the guard bands that would be required to avoid terrestrial signals would occupy excessive spectrum. This proposal will also interfere with other C-band satellite services, such as video and data, which have also accommodated the 20 MHz terrestrial channel spacing in other ways.

The proposal to introduce channel spacings of 400 kHz, 800 kHz, 1.6 MHz, and 5 MHz between 3700 and 3740 MHz as well as between 4160 and 4200 MHz³ would render four satellite transponders operating in those frequency bands either totally or partially unusable for SCPC and most other satellite applications as well. One of the two new transponders purchased for the replacement PRSIS utilizes frequencies between 3700 and 3740 MHz. NPR finds the proposed rechannelization for these frequencies to be strongly objectionable since half of the capacity purchased for the replacement system would be potentially unusable.

A stated goal of the FNPRM is to "... permit new users to access the five bands without adversely affecting existing licensees."⁴ While the context of this statement is in reference to both new and existing terrestrial users of these bands, the satellite users who share this band on a co-primary basis must also be considered. The proposed reallocation and rechannelization of the 3.7 to 4.2 GHz band does not achieve this goal, as it seriously threatens adverse effects on satellite

³Proposed Sections 21.701(d)(1-4) and 94.65(g)(1-4)

⁴FNPRM at ¶ 32.

users.

Existing satellite licensees and registrants will be faced with the potential of increased usage of the frequencies that are shared with terrestrial users, since the proposed reallocation of the band would allow numerous additional fixed private radio users as well as existing common carrier users to utilize these new frequencies on a co-primary basis. Under the proposed rechannelization plan, there is an unacceptably high risk that existing services of current satellite users could be disrupted by terrestrial services on the newly allocated frequencies, even if both satellite and terrestrial users are frequency coordinated.

An even more potentially damaging consequence of the proposed reallocation and rechannelization will be the increased difficulty in frequency coordination for new satellite users of this band. With a greater number of terrestrial users eligible to use this band on a co-primary basis, and a greater number of channels available for licensing by those users, the likelihood of a new satellite user being able to successfully frequency-coordinate a site is diminished. This is a particular concern to public radio, as one of the priorities set by Congress in authorizing the replacement public radio satellite system was expansion of service into unserved and underserved areas of the country.

NPR is presently aware of at least 35 public radio stations, many located in areas without any public radio service, that are in various stages of preparation for construction of earth

terminals to receive satellite delivered services. If the proposed rechannalization is approved, within several years it will become much more difficult for these and other new satellite users to successfully frequency coordinate a site in an area where terrestrial users have achieved precedence. The commitment that Congress has made in increasing the replacement PRSIS transponder capacity will not be realized, and the goal of increasing service and programming to the American public will become more difficult to fulfill if the proposed rechannalization is approved.

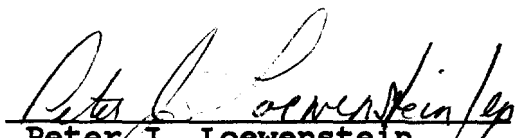
The FNPRM proposes to alleviate the displacement of 220 MHz of bandwidth at 2 GHz frequencies by allowing access by common carrier services to an additional 410 MHz in several frequency bands, and an additional 2020 MHz of bandwidth for private radio services, some of which will be shared by the two services. It appears that the requirements of satellite users have been overshadowed in this proceeding by the proper concern for the services that are being displaced from the 2 GHz band. In light of the extensive additional bandwidth proposed in the FNPRM for reallocation to these terrestrial microwave users, NPR submits that there is sufficient bandwidth available outside the 3.7 to 4.2 GHz band to accommodate that concern without changing the existing terrestrial channelization of this band.

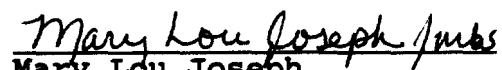
The proposals contained within the FNPRM regarding the rechannalization of the 3.7 to 4.2 GHz band are not in the public interest. Severe disruption of public radio programming distribution and C-band satellite service in general is a likely,


if not inevitable, consequence of this measure, and there are less disruptive alternatives available within the scope of the rulemaking to accomplish the Commission's basic objective. Accordingly, NPR urges the Commission to eliminate those portions of the FNPRM that pertain to rechannelization of frequencies utilized by terrestrial microwave services in the 3.7 to 4.2 GHz band.

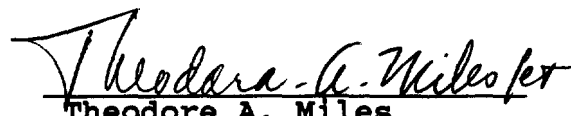
Respectfully submitted,


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